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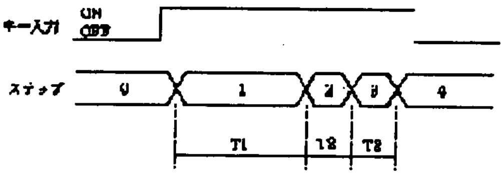
(54) KEY INPUT CONTROLLER

(57)Abstract:

PURPOSE: To easily perform key input operations even when the hand or the finger is injured or gets palsy or even when a keyboard is used by a person handicapped in the arm or by the old by making different time until the start of a repeated input function and repeating time corresponding to input modes.

CONSTITUTION: When a standard mode/slow mode switching key is inputted in a standard mode, interval time between the time from the ON of a key to the start of repeated input handling and the repeating time is changed into previously set time concerning the key provided with the repeated input function. The values of these repeated input start time T1 and repeating interval time T2 are stored in a ROM. When an up key is pressed, for example, the T1 is 0.3 second and the T2 is 0.03 second in the standard mode. The user selects the most convenient time from the modes of SLOW 1-4. Even concerning general keys, the key input is made valid after inputting is performed continuously for prescribed time and afterwards, the new key input can be made invalid as well for prescribed time.



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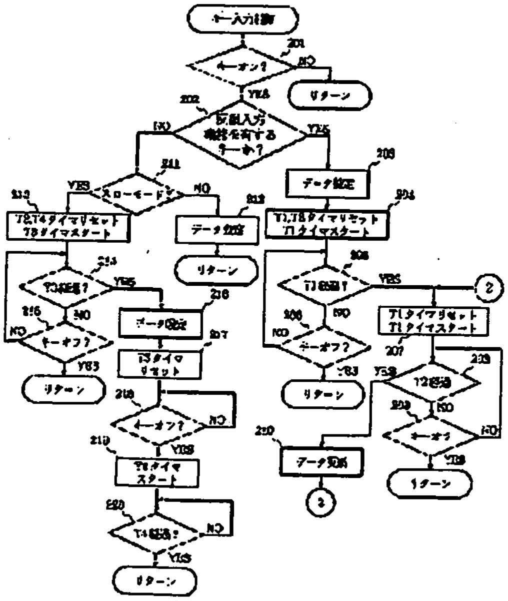
(54)【発明の名称】　キー入力制御装置

(57)【要約】

【目的】　手指のケガ・しびれのある場合、或いは上肢障害者やお年寄りの方が操作する場合でも、思い通りのキー入力を可能にする。

【構成】　反復入力機能を有するキーの入力に関して、スローモード時、反復入力開始時間と繰り返し時間を標準モード時のそれよりも長くする。また、反復入力機能を持たないキーの入力に関して、スローモード時は所定時間キー入力が続いたらキー入力を有効にし、キー入力操作終了後所定時間は新たなキー入力を無効にする。



【特許請求の範囲】

【請求項1】 データを入力するための自己復帰型のキー入力手段と、

上記キー入力手段により入力されたデータを記憶する記憶手段と、

上記キー入力手段が第1の時間入力され続けられた後、引き続き第2の時間入力され続ける毎に上記記憶手段に記憶されたデータを更新するキー入力制御手段と、

上記第1の時間及び上記第2の時間が基準値となる第1のモードと、上記第1の時間及び上記第2の時間が上記基準値よりも長くなる第2のモードとの一方を選択する選択手段と、

を有することを特徴とするキー入力制御装置。

【請求項2】 上記第2のモードにおける上記第1の時間及び上記第2の時間を設定する設定手段を有することを特徴とする請求項1記載のキー入力制御装置。

【請求項3】 データを入力するための自己復帰型のキー入力手段と、

上記キー入力手段により入力されたデータを記憶するための記憶手段と、

第1のモードでは上記キー入力手段が入力されると直ちに上記記憶手段にデータを記憶させ、第2のモードでは上記キー入力手段が第1の時間入力され続けると上記記憶手段にデータを記憶させ、かつ、上記キー入力手段入力終了後、第2の時間経過前は新たな入力を無効にするキー入力制御手段と、

上記第1モードと上記第2モードの一方を選択する選択手段と、

を有することを特徴とするキー入力制御装置。

【請求項4】 上記第1の時間及び上記第2の時間を設定する設定手段を有することを特徴とする請求項3記載のキー入力制御装置。

【発明の詳細な説明】

【0001】

【産業上の利用分野】本発明は複写機等の操作部のキー入力制御に関するものである。

【0002】

【従来の技術】従来複写機等の自己復帰型のキーのキー入力制御として、打鍵直後にキー入力状態を確定する構成と、一定時間押し続けると連続打鍵したときと同様に連続入力できる反復入力機能を有する構成があり、そのキーの使用目的によってあらかじめ設定されていた。

【0003】

【発明が解決しようとする課題】しかしながら上記従来例では、手や指をケガしたり、手や指がしびれている場合、或いは上肢障害者やお年寄り等の手の不自由な方が操作を行う場合、希望するキー入力が思うように行えない場合がある。

【0004】例えば、打鍵直後にキー入力を確定するキーでは、1回入力するつもりが2回、3回と入力されてしまう事態や、反復入力機能を有するキーでは、指の微妙なコントロールができないことがあると、希望の入力よりもカーソルが移動しすぎたり、数値がカウントされすぎたりしてしまうなどの事態が生じることがある。

【0005】

【課題を解決するための手段】本発明は上記の課題を解決するために、データを入力するための自己復帰型のキー入力手段と、上記キー入力手段により入力されたデータを記憶する記憶手段と、上記キー入力手段が第1の時間入力され続けられた後、引き続き第2の時間入力され続ける毎に上記記憶手段に記憶されたデータを更新するキー入力制御手段と、上記第1の時間及び上記第2の時間が基準値となる第1のモードと、上記第1の時間及び上記第2の時間が上記基準値よりも長くなる第2のモードとの一方を選択する選択手段と、を有するものである。

【0006】また、本発明は、データを入力するための自己復帰型のキー入力手段と、上記キー入力手段により入力されたデータを記憶するための記憶手段と、第1のモードでは上記キー入力手段が入力されると直ちに上記記憶手段にデータを記憶させ、第2のモードでは上記キー入力手段が第1の時間入力され続けると上記記憶手段にデータを記憶させ、かつ、上記キー入力手段入力終了後、第2の時間経過前は新たな入力を無効にするキー入力制御手段と、上記第1モードと上記第2モードの一方を選択する選択手段と、を有するものである。

【0007】

【作用】上述した構成により本発明は、反復入力機能を開始するまでの時間と繰り返し時間とを入力モードに応じて異ならせることにより、手や指をケガしていたり、手や指がしびれている場合、或いは上肢障害者やお年寄りの方が使用する場合であってもキー入力操作を容易に行うことを可能とするものである。

【0008】また、本発明は反復入力機能を有するキー以外の一般のキーに関して所定時間入力され続けた後にキー入力を有効とし入力操作終了後、所定時間は新たなキー入力を無効とするモードを設けることにより、手や指をケガしていたり、手や指がしびれている場合、或いは上肢障害者やお年寄りの方が使用する場合であってもキー入力操作を容易に行うことを可能とするものである。

【0009】

【実施例】以下、図面を参照して本発明の実施例について詳細に説明する。

【0010】図1は複写装置の上部を表わす斜視図であり、1は複写装置本体、2はコピースタートキー、3は各種複写モードを設定するためのモード設定キー、4は表示部、5は設定された複写モードを標準のモードに復帰させるためのリセットキー、6は反復入力機能をオン・オフするためのキーリピートオンオフキーである。上

記の各キーは自己復帰型のキーとなっている。

【００１１】図２は複写装置の操作部の一部を表わす図である。１０１はキー入力の状態を標準モードとスローモードの一方に切り換える切換キー、１０２，１０３は複写濃度を薄くしたり濃くしたりする濃度調整キー、１０４，１０５は定型複写倍率を選択する倍率選択キー、１０６はコピースタートキー、１０７，１０８は各種複写モードの設定に使用したり、ズーム倍率を選択するアップキー，ダウンキー、１０９はテンキーである。

【００１２】標準のキー入力制御では，２種類の制御が行われている。１つは濃度調整キー（１０２，１０３），倍率選択キー（１０４，１０５）、アップ・ダウンキー（１０７，１０８）等の様に一定時間押し続けると連続打鍵したとき同様に連続入力できる反復入力（キーリピート）機能を有するキーと、もう１つは反復入力機能を有するキー以外の一般のキーであり、入力制御は打鍵直後にキー入力状態を確定する。　＊

＊【００１３】図３は本発明のキー入力制御に係る構成を示すブロック図であり、１２０は複写装置全体の動作を制御するＣＰＵ，１２１は種々の制御プログラムや制御データを格納してあるＲＯＭ、１２２は種々のデータを格納するＲＡＭ，１２３は前述した各種キー、１２４は前述した表示部である。

【００１４】次にスローモードについて説明する。標準モード時に標準モード／スローモード切替キー１０１を入力すると、反復入力機能を有するキーに関してキーがオンされてから反復入力扱いを開始するまでの時間と繰り返しの間隔時間をあらかじめ設定された時間に変更する。この反復入力開始時間（Ｔ１）と繰り返し間隔時間（Ｔ２）の値はＲＯＭ１２１に格納されており，表１に示すようにユーザーが自由に設定できる。

【００１５】

【表１】

表　1　　反復入力機能設定時間

	開始時間（Ｔ1）	間隔時間（Ｔ2）
標準値	０．３秒	０．０３秒
ＳＬＯＷ１	０．５秒	０．０５秒
ＳＬＯＷ２	１秒	０．１秒
ＳＬＯＷ３	３秒	０．３秒
ＳＬＯＷ４	５秒	０．５秒

【００１６】例えば、アップキー１０８が押された場合，表１に示すように、標準モードではＴ１が０．３秒，Ｔ２が０．０３秒となっている。ユーザーはあらかじめ最も使いやすい時間をＳＬＯＷ１－ＳＬＯＷ４の中から選んでおく。選択方法は例えばＩＤキー１１０を押した後に切換キー１０１を押し、テンキーの１～４のいずれかを押してＳＬＯＷ１～ＳＬＯＷ４のいずれかを決定し，再びＩＤキー１１０を押すものとする。この値がスローモードを選択したときの値となる。動作は図４に示すようにキー入力がされてからＴ１の時間までがＳＴＥＰ１となる，それからＴ２の時間ごとにＳＴＥＰが２，３，４，・・・と更新されキー入力が終了した時点でそのＳＴＥＰが確定する。つまり，アップキー１０８が押された場合，ＳＴＥＰ０は１００％（キー入力前の倍率）、ＳＴＥＰ１は１０１％、ＳＴＥＰ２は１０２％を示し、最終的にはＳＴＥＰ４の１０４％で確定されたことになる。このＳＴＥＰとは濃度キーであれば濃度値，定型変倍であれば変倍率となり，そのキーによって内容が異なる。

【００１７】次に、反復入力機能を有するキー以外の一般のキーについてのスローモードでの制御を説明する。標準モードではキー入力がされた直後に入力データを確定しているが，スローモードでは、各キーの状態を打鍵直後から一定時間（Ｔ３）保持して初めて有効となり、その後一定時間（Ｔ４）経過するまで次の打鍵を無効とする。その設定時間はＲＯＭ１２１に格納されており、表２に示す様に，ユーザーが自由に設定できる。そして選択した時間がスローモード設定時に選択される。これにより図５に示すようにＡとＢのポイントのみで入力を受け付ける。この制御を行うことにより指の動きなどがスムーズにできない場合でも、不容易なキー入力を防止でき，所望のデータを入力することができる。

【００１８】

【表２】

表２　キー入力確定機能設定時間

	保持時間（Ｔ３）	経過時間（Ｔ４）
ＳＬＯＷ１	０．３秒	１　秒
ＳＬＯＷ２	０．６秒	２　秒
ＳＬＯＷ３	０．９秒	３　秒

【００１９】尚，反復入力機能を有するキーと一般のキーのスローモードのときの時間設定は互いに従属させて設定しても良いし、独立させて設定しても良い。また、Ｔ１とＴ２，Ｔ３とＴ４についても，互いに従属させて設定しても良いし、独立させて設定しても良い。

【００２０】図６は複写装置の動作を示すフローチャートである。

【００２１】複写装置の電源が投入されると、初期設定を行い（ステップ１００），キー入力制御サブルーチンを実行する（ステップ２００）。そしてコピースタート指令があると（ステップ３００）、コピー動作を行う（ステップ４００）。電源スイッチがオフされるまでステップ２００～ステップ４００を繰り返す。

【００２２】図７はキー入力制御のサブルーチンを示すフローチャートである。

【００２３】何らかのキーが入力されると（ステップ２０１）、入力されたキーが反復入力機能を有するキーか否か判断し（ステップ２０２）、反復入力機能を有するキーであれば，オンされたキーに応じたデータをＲＡＭ１２２の所定エリアに設定する（ステップ２０３）。そして，Ｔ１タイマ、Ｔ２タイマをリセットするとともに，Ｔ１タイマをスタートする（ステップ２０４）。予め選択された標準モード又はスローモードに応じたＴ１時間経過するまでキーがオフされると（ステップ２０５，２０６），サブルーチンを終了する。Ｔ１時間経過すると、Ｔ１タイマをリセットし、Ｔ２タイマをスタートする（ステップ２０７）。予め選択された標準モード又はスローモードに応じたＴ２時間経過するまでにキーがオフされると（ステップ２０８，２０９）、サブルーチンを終了する。Ｔ２時間経過すると，反復入力扱いとなり，ＲＡＭの所定エリアに格納されたデータを更新し（ステップ２１０）、ステップ２０７へ戻る。また、ステップ２０１でオンされたキーが一般のキーであれば、スローモードが設定されているか否か判断し（ステップ２１１）、標準モードであれば、オンされたキーに応じたデータをＲＡＭの所定エリアへ格納する（ステップ２１２）。スローモードが設定されていれば、Ｔ３タイマ，Ｔ４タイマをリセットし（ステップ２１３），予め選択されたスローモードの種類に応じたＴ３時間経過するまでにキーがオフされると（ステップ２１４，２１５），サブルーチンを終了する。Ｔ３時間経過するとキー入力が有効となり、オンされたキーに応じたデータを設定し（ステップ２１６），Ｔ３タイマをリセットする（ステップ２１７）。キーがオフされると（ステップ２１８）、Ｔ４タイマをスタートし（ステップ２１９）、予め選択されたスローモードの種類に応じたＴ４時間経過すると（ステップ２２０）、サブルーチンを終了し、新たなキー入力が可能となる。

【００２４】尚，図１に示したキーリピートオンオフキー６をオンする毎に、反復入力機能が有効になったり、無効になったりする。有効か無効かは表示部に表示されるが，キー６の近傍に専用の表示器（ＬＥＤ）を設けても良い。

【００２５】上記の実施例では反復入力開始時間や繰り返し時間等を長くするスローモードについて説明したが，これとは逆に操作に熟練したユーザ向けにファストモードを設け，反復入力開始時間や繰り返し時間を短く設定するようにしても良い。

【００２６】

【発明の効果】以上説明したように本発明によれば、反復入力機能を有するキーの入力に関しては反復入力開始時間と繰り返し時間を使用者に応じて変更できるようにしたことにより，手や指をケガしていたり、手や指がしびれている場合，或いは上肢障害者やお年寄りの方が操作する場合であっても、思い通りのキー入力を行うことができる。

【００２７】また、本発明によれば，反復入力機能を有するキー以外の一般のキーの入力に関してはあるモードではキーが所定時間入力され続けるとキー入力を有効にし，キー入力操作終了後所定時間は新たなキー入力を無効とすることにより、手や指をケガしていたり，手や指がしびれている場合、或いは上肢障害者やお年寄りの方が操作する場合であっても，思い通りのキー入力を行うことができる。

【図面の簡単な説明】

【図１】複写装置の斜視図。

【図２】操作部の一部を示す図。

【図３】キー入力制御に関する構成を示すブロック図。

【図4】反復入力機能を有するキーの入力状態を示す図。

【図5】反復入力機能を有するキー以外の一般にキーの入力状態を示す図。

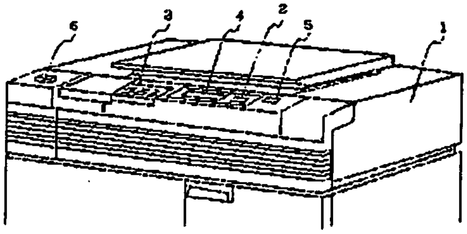
【図6】複写装置の動作を示すフローチャート。

【図7】キー入力制御を示すフローチャート。 ＊

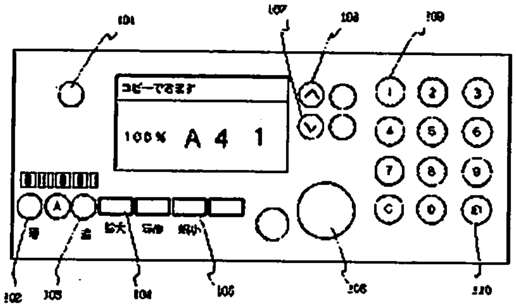
＊【符号の説明】

１０１	標準モード・スローモード切換キー
１０２，１０３	濃度調整キー
１０４，１０５	定型変倍キー
１０７，１０８	アップ・ダウンキー

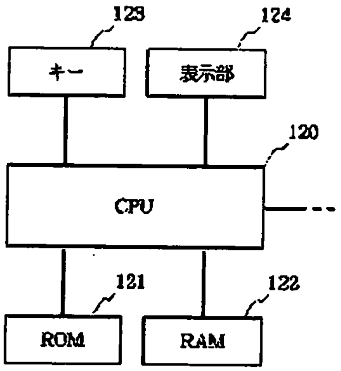
【図１】



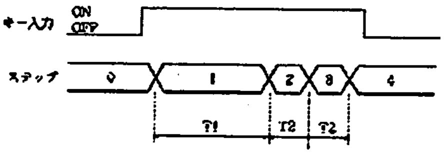
【図２】



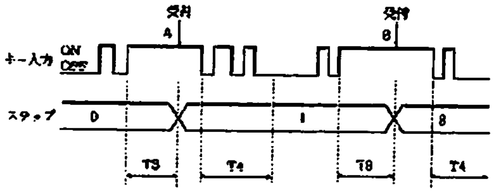
【図３】



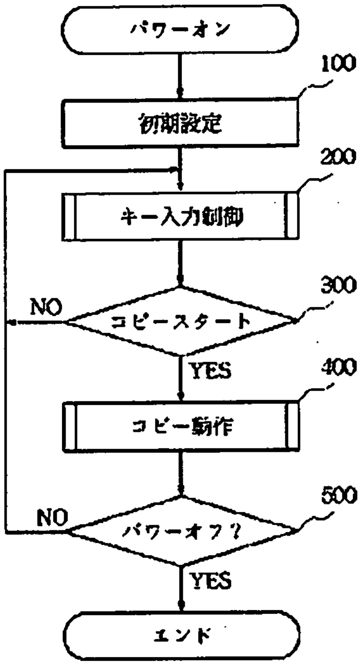
【図４】



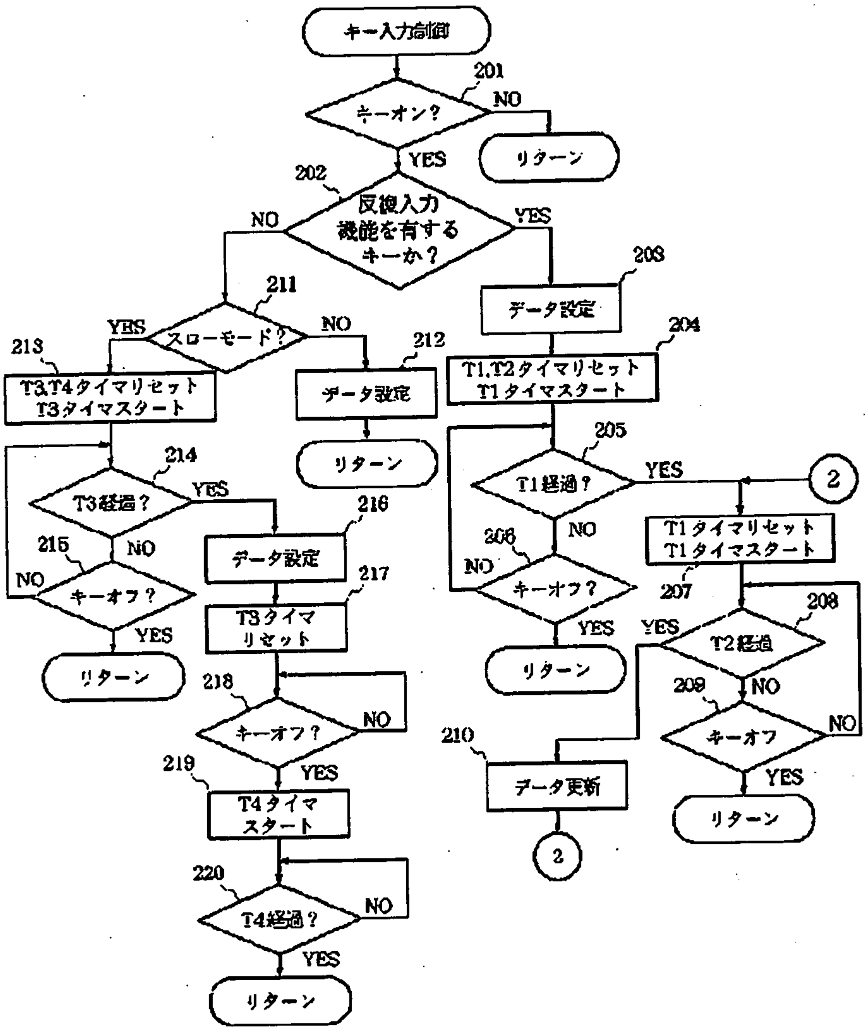
【図５】



【図6】


パワーオン
100
初期設定
200
キー入力制御
300
NO
コピースタート
YES
400
コピー動作
500
NO
パワーオフ？
YES
エンド

【図7】


キー入力制御
201
キーオン？
NO
リターン
YES
202
反復入力機能を有するキーか？
NO
YES
203
データ設定
204
T1,T2タイマリセット
T1タイマスタート
205
T1経過？
YES
NO
206
キーオフ？
NO
YES
リターン
2
T1タイマリセット
T1タイマスタート
207
208
T2経過
YES
NO
209
キーオフ
NO
YES
リターン
210
データ更新
2
211
スローモード？
YES
NO
212
データ設定
リターン
213
T3,T4タイマリセット
T3タイマスタート
214
T3経過？
YES
NO
215
キーオフ？
NO
YES
リターン
216
データ設定
217
T3タイマリセット
218
キーオフ？
NO
YES
219
T4タイマスタート
220
T4経過？
NO
YES
リターン

JP,06-149436,A [CLAIMS]

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CLAIMS

[Claim(s)]

[Claim 1]A keystroke control device comprising:

A key input means self-reset type [for inputting data].

A memory measure which memorizes data inputted by the above-mentioned key input means.

A keystroke control means which updates data which is the 2nd succeedingly, and which was memorized by the above-mentioned memory measure whenever a time input continued being carried out after [whose above-mentioned key input means is the 1st] a time input continues being carried out.

A selecting means which chooses one side in the 1st mode in which the 1st hour of the above and the 2nd hour of the above serve as a reference value, and the 2nd mode in which the 1st hour of the above and the 2nd hour of the above become longer than the above-mentioned reference value.

[Claim 2]The keystroke control device according to claim 1 having a setting-out means to set up the 1st hour of the above and the 2nd hour of the above in the 2nd mode of the above.

[Claim 3]A keystroke control device comprising:

A key input means self-reset type [for inputting data].

A memory measure for memorizing data inputted by the above-mentioned key input means.

When the above-mentioned key input means is inputted in the 1st mode, the above-mentioned memory measure is made to memorize data promptly, A keystroke control means whose above-mentioned key input means is the 1st in the 2nd mode and which will make the above-mentioned memory measure memorize data, and will repeal an input with after the above-mentioned end of a key input means input and before the 2nd time progress if a time input continues being carried out. [new]
A selecting means which chooses one side in the 1st mode of the above, and the 2nd mode of the above.

[Claim 4]The keystroke control device according to claim 3 having a setting-out means to set up the 1st hour of the above, and the 2nd hour of the above.

[Translation done.]

JP,06-149436,A [DETAILED DESCRIPTION]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application]This invention relates to keystroke control of final controlling elements, such as a copying machine.
[0002]
[Description of the Prior Art]As keystroke control of a self-reset [, such as a copying machine,] type key, there are composition which becomes final and conclusive a keystroke state immediately after a touch, and composition which has a typematic function which can carry out a continuation input like the time of carrying out a continuation touch when it continued pushing fixed time conventionally, and it was beforehand set up by the purpose of using the key.
[0003]
[Problem(s) to be Solved by the Invention]However, when a hand and a finger are injured or the hand and the finger are being numbed with the above-mentioned conventional example, or when a direction with trouble in hands, such as an upper extremity disabled person and an old person, operates it, it may be unable to carry out so that it may consider inputting [to wish].
[0004]For example, in the key which becomes final and conclusive a keystroke immediately after a touch. In the situation where the intention of inputting once will be inputted as 2 times and 3 times, and the key which has a typematic function, if delicate control of a finger may not be able to be performed, the situation of cursor moving too much and it being sufficient, and a numerical value counting too much, and it being

sufficient, and carrying out rather than the input of hope, may arise.

[0005]

[Means for Solving the Problem]A key input means self-reset type [for inputting data, in order that this invention may solve the above-mentioned technical problem], After [a memory measure which memorizes data inputted by the above-mentioned key input means, and whose above-mentioned key input means are the 1st] a time input continued being carried out, In a time input, the 2nd succeedingly A keystroke control means which updates data memorized by the above-mentioned memory measure whenever it continues being carried out, It has a selecting means which chooses one side in the 1st mode in which the 1st hour of the above and the 2nd hour of the above serve as a reference value, and the 2nd mode in which the 1st hour of the above and the 2nd hour of the above become longer than the above-mentioned reference value.

[0006]A self-reset [for this invention to input data] type key input means, A memory measure for memorizing data inputted by the above-mentioned key input means, When the above-mentioned key input means is inputted in the 1st mode, the above-mentioned memory measure is made to memorize data promptly, A keystroke control means whose above-mentioned key input means is the 1st in the 2nd mode and which will make the above-mentioned memory measure memorize data, and will repeal an input with after the above-mentioned end of a key input means input and before the 2nd time progress if a time input continues being carried out, [new] It has a selecting means which chooses one side in the 1st mode of the above, and the 2nd mode of the above.

[0007]

[Function]Time and repetition time until it starts a typematic function by this invention by composition mentioned above are changed according to an input mode.

Therefore, when the hand and the finger are injured or the hand and the finger are being numbed, or even if it is a case where upper extremity disabled persons and old persons use it, it makes it possible to perform key input operations easily.

[0008]In this invention, after a predetermined time input continues being carried out about general keys other than the key which has a typematic function, a keystroke is validated and predetermined time forms the mode which repeals a new keystroke after the end of alter operation.

Therefore, when the hand and the finger are injured or the hand and the finger are being numbed, or even if it is a case where upper extremity disabled persons and old persons use it, it makes it possible to perform key input operations easily.

[0009]

[Example]Hereafter, with reference to drawings, the example of this invention is described in detail.

[0010]Drawing 1 is a perspective view showing the upper part of a reproducing unit, and a reproducing-unit main part and 2 1 A copy start key, A reset key for a mode setting key for 3 to set up various copying modes and 4 to return an indicator and the copying mode to which 5 was set to the standard mode, and 6 are the key repeat turning-on-and-off keys for turning a typematic function on and off. Each of above-mentioned keys are self-reset type keys.

[0011]Drawing 2 is a figure showing a part of final controlling element of a reproducing unit. The exchange key by which 101 switches the state of a keystroke to one side in a canonical mode and the slow mode, The concentration adjustment key which 102,103 makes image density thin or is made deep, The rise key which uses the magnification selection key as which 104,105 chooses fixed form copying magnification, and 106 for a copy start key, and uses 107,108 for setting out of various copying modes, or chooses zoom magnifying power, a down key, and 109 are ten keys.

[0012]Two kinds of control are performed in standard keystroke control. One A concentration adjustment key (102,103), a magnification selection key (104,105), The key which has a typematic (key repeat) function which can carry out a continuation input like the time of carrying out a continuation touch when it continues pushing fixed time like a rise down key (107,108), and another are general keys other than the key which has a typematic function, and input control becomes final and conclusive a keystroke state immediately after a touch.

[0013]CPU by which drawing 3 is a block diagram showing the composition concerning keystroke control of this invention, and 120 controls operation of the whole reproducing unit, ROM in which 121 has stored various control programs and control data, RAM in which 122 store various data, the various keys which 123 mentioned above, and 124 are the indicators mentioned above.

[0014]Next, the slow mode is explained. If a canonical mode / slow mode switching key 101 is inputted at the time of a canonical mode, time after the one [a key] about the key which has a typematic function until it starts typematic treatment, and repeated interval time will be changed at the time set up beforehand. The value of this typematic time of onset (T1) and repeating interval time (T2) is stored in ROM121, and as shown in Table 1, a user can set it up freely.

[0015]

[Table 1]

表 1　反復入力機能設定時間

	開始時間（Ｔ１）	間隔時間（Ｔ２）
標準値	０．３秒	０．０３秒
ＳＬＯＷ１	０．５秒	０．０５秒
ＳＬＯＷ２	１秒	０．１秒
ＳＬＯＷ３	３秒	０．３秒
ＳＬＯＷ４	５秒	０．５秒

[0016]For example, when the rise key 108 is pressed, as shown in Table 1, by the canonical mode, T1 will be 0.3 second and T2 has become 0.03 second. The user chooses time to be the easiest to use beforehand from SLOW1-SLOW4. A selection method presses the exchange key 101, after pressing ID key 110, it pushes either [of a ten key] 1-4, shall determine either SLOW1-SLOW4, and shall press ID key 110 again. It becomes a value when this value chooses the slow mode. As shown in drawing 4, after the keystroke was carried out, and even the time of T1 was set to STEP1, when STEP is updated with 2, 3, 4, and ... every time of T2 and a keystroke is completed, the STEP becomes final and conclusive operation. That is, when the rise key 108 is pressed, it means that STEP1 shows 101%, STEP2 shows 102%, and STEP0 was eventually become final and conclusive by 104% of STEP4 100% (magnification before a keystroke). If this STEP is a concentration key and it is a concentration value and fixed form variable power, it becomes a variable power rate and the contents change with those keys.

[0017]Next, control in the slow mode about general keys other than the key which has a typematic function is explained. Although input data is become final and conclusive immediately after carrying out a keystroke in the canonical mode, in the slow mode, it becomes effective only after carrying out fixed time (T3) maintenance of the state of each key from immediately after a touch, and the next touch is repealed until it carries out fixed time (T4) progress after that. The set period is stored in ROM121, and as shown in Table 2, a user can set it up freely. And the selected time is chosen at the time of slow mode setting. As this shows drawing 5, an input is received only on the point of A and B. Even when a motion of a finger etc. cannot be smoothly performed by performing this control, an un-easy keystroke can be prevented and desired data can be inputted.

[0018]

[Table 2]

表 2　キー入力確定機能設定時間

	保持時間（T3）	経過時間（T4）
SLOW1	0.3秒	1秒
SLOW2	0.6秒	2秒
SLOW3	0.9秒	3秒

[0019]The time setting at the time of the slow mode of the key which has a typematic function, and a general key may be subordinated mutually, may be set up, may be made to become independent and may be set up. It may be made mutually subordinate and may set up also about T1, T2, and T3 and T4, and it may be made to become independent and may set up.

[0020]Drawing 6 is a flow chart which shows operation of a reproducing unit.

[0021]If the power supply of a reproducing unit is switched on, initial setting will be performed (Step 100) and a keystroke control subroutine will be performed (Step 200). And copy operation will be performed if there are Koppies Tart instructions (Step 300) (Step 400). Step 200 - Step 400 are repeated until an electric power switch is turned off.

[0022]Drawing 7 is a flow chart which shows the subroutine of keystroke control.

[0023]If a certain key is inputted (Step 201), the inputted key judges whether it is a key which has a typematic function (Step 202), and if it is a key which has a typematic function, the data according to the key [one / the key] will be set as the prescribed area of RAM122 (Step 203). And T1 timer is started while resetting T1 timer and T2 timer (Step 204). it responded to the preselected canonical mode or slow mode -- a subroutine will be ended, if a key is turned off until T 1 hour passes (Step 205,206). T1 timer is reset and T2 timer is started [T / 1 hour] after (Step 207). it responded to the preselected canonical mode or slow mode -- a subroutine will be ended, if a key will be turned off by the time T 2 hours pass (Step 208,209). It becomes typematic treatment, the data stored in the prescribed area of RAM is updated (Step 210), and it returns to Step 207 [T / 2 hours] after. It judges whether the slow mode is set up if the key [one / the key / Step 201] is a general key (Step 211), and if it is a canonical mode, the data according to the key [one / the key] is stored in the prescribed area of RAM (Step 212).

when the slow mode was set up, T3 timer and T4 timer were reset (Step 213), and the kind in preselected slow mode was embraced -- a subroutine will be ended, if a key will be turned off by the time it carries out T3 time progress (Step 214,215). If T3 time progress is carried out, a keystroke will become effective, will set up the data according to the key [one / the key] (Step 216), and will reset T3 timer (Step 217). when the key was turned off (Step 218), T4 timer was started (Step 219) and the kind in preselected slow mode was embraced -- a subroutine is ended and a new keystroke is attained [T / 4 hours] after (Step 220).

[0024]Whenever one [the key repeat turning-on-and-off key 6 shown in drawing 1], a typematic function becomes effective or becomes invalid. Whether it is effective or invalid may form a display for indication (LED) for exclusive use near the key 6, although displayed on an indicator.

[0025]Although the above-mentioned example explained the slow mode which lengthens typematic time of onset, repetition time, etc., the fast mode is formed for the users who became skillful in operation contrary to this, and it may be made to set up typematic time of onset and repetition time short.

[0026]

[Effect of the Invention]It enabled it to change typematic time of onset and repetition time in this invention according to a user about the input of the key which has a typematic function, as explained above.

Therefore, a satisfactory keystroke can be performed, when the hand and the finger are injured or the hand and the finger are being numbed, or even if it is a case where upper extremity disabled persons and old persons operate it.

[0027]In this invention, if the predetermined time input of the key continues being carried out in a certain mode about the input of general keys other than the key which has a typematic function, it will input effectively, and the predetermined time after the end of key input operations repeals a new keystroke.

Therefore, a satisfactory keystroke can be performed, when the hand and the finger are injured or the hand and the finger are being numbed, or even if it is a case where upper extremity disabled persons and old persons operate it.

[Translation done.]

JP,06-149436,A [DESCRIPTION OF DRAWINGS]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1]The perspective view of a reproducing unit.
[Drawing 2]The figure showing a part of final controlling element.
[Drawing 3]The block diagram showing the composition about keystroke control.
[Drawing 4]The figure showing the input state of the key which has a typematic function.
[Drawing 5]The figure showing the input state of a key generally other than the key which has a typematic function.
[Drawing 6]The flow chart which shows operation of a reproducing unit.
[Drawing 7]The flow chart which shows keystroke control.
[Description of Notations]
101 Canonical-mode slow mode exchange key
102,103 Concentration adjustment key
104,105 Fixed form variable power key
107,108 Rise down key

[Translation done.]

JP,06-149436,A [DRAWINGS]

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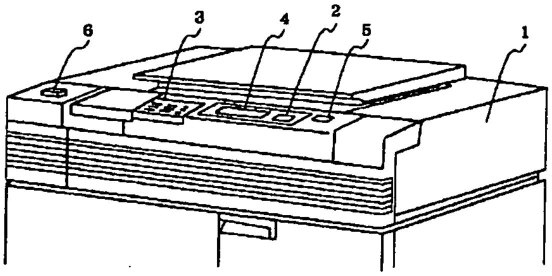
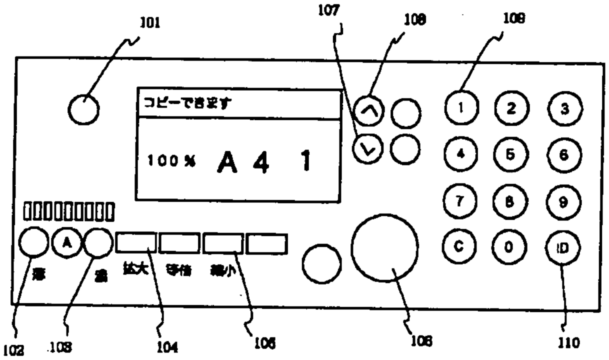
DRAWINGS

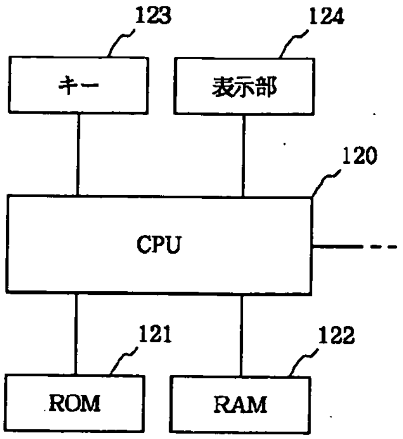
[Drawing 1]



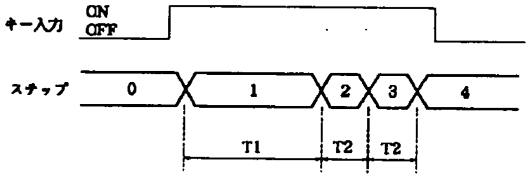
[Drawing 2]



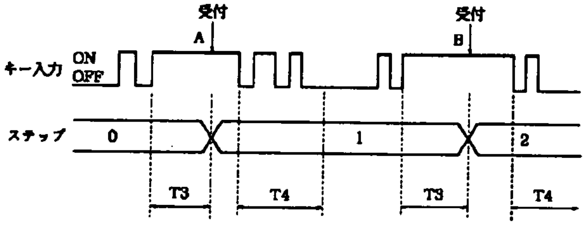
[Drawing 3]



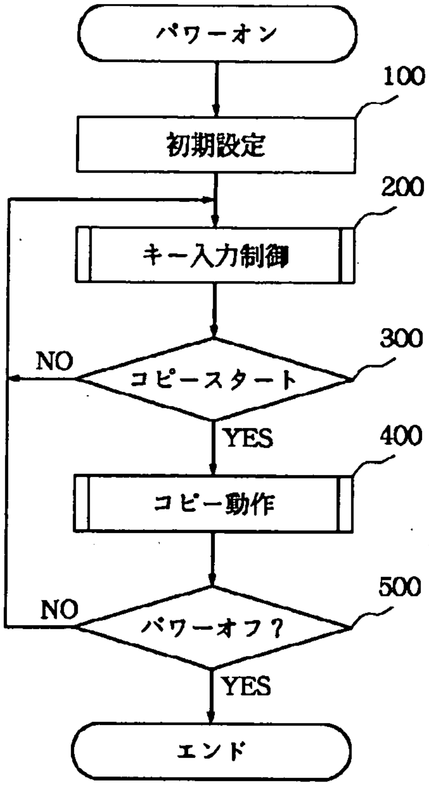
[Drawing 4]



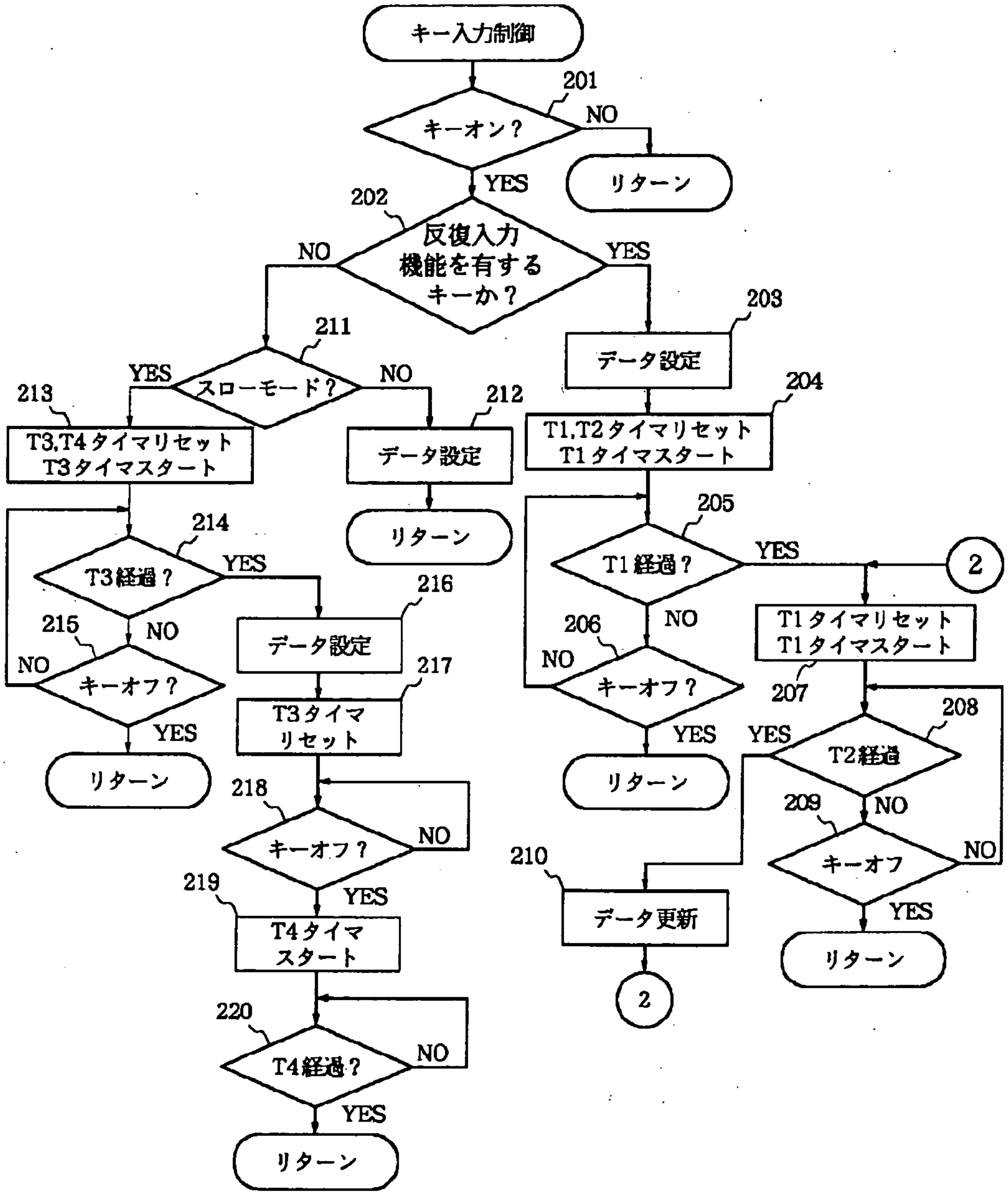
[Drawing 5]



[Drawing 6]


パワーオン
100
初期設定
200
キー入力制御
300
NO
コピースタート
YES
400
コピー動作
500
NO
パワーオフ？
YES
エンド

[Drawing 7]



[Translation done.]

JP,2000-047532,A [CLAIMS]

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CLAIMS

[Claim(s)]
[Claim 1]An image forming device which has two or more input keys, comprising:
A skill level calculating means which computes skill level of operation of said input key.
A display screen setting-out means to set up a display screen based on said computed skill level.
A displaying means which displays said set-up display screen.

[Claim 2]The image forming device according to claim 1 which is provided with the following and characterized by constituting said skill level calculating means so that skill level of operation of said input key may be computed based on said computed average value.
A measurement means which measures key touch reaction time over said input key.
A calculating means which computes average value of said measured key touch reaction time.

[Claim 3]The image forming device according to claim 2 provided with an average value memory measure which memorizes said computed average value.
[Claim 4]An image forming device of claim 1-3 provided with a standard-screen memory measure which memorizes two or more display screens corresponding to said computed skill level given in any 1 paragraph.
[Claim 5]Have an operator information input means which inputs information about an operator, and said skill level calculating means, An image forming device of claim 1-4

characterized by setting up said display screen based on information about an operator inputted by said operator information input means at the time of the beginning of using of the image forming device concerned given in any 1 paragraph.

[Claim 6]The image forming device according to claim 5, wherein information about said operator is information including age of those who use a device at least, and eyesight.

[Claim 7]A display control method of an image forming device computing skill level of operation of said input key, setting up a display screen based on said computed skill level in a display control method of an image forming device which has two or more input keys, and displaying said set-up display screen.

[Claim 8]A display control method of the image forming device according to claim 7 computing average value of key touch reaction time over said input key, and computing skill level of operation of said input key based on said computed average value.

[Claim 9]A display control method of the image forming device according to claim 8, wherein said computed average value is memorized by average value memory measure.

[Claim 10]A display control method of an image forming device of claim 7-9, wherein two or more display screens corresponding to said computed skill level are memorized by memory measure given in any 1 paragraph.

[Claim 11]A display control method of an image forming device of claim 7-10 inputting information about an operator and setting up said display screen based on information about said inputted operator at the time of the beginning of using of the image forming device concerned given in any 1 paragraph.

[Claim 12]A display control method of the image forming device according to claim 11, wherein information about said operator is information including age of those who use a device at least, and eyesight.

[Claim 13]In an image forming device which has two or more input keys, a process of computing skill level of operation of said input key, a process of setting up a display screen based on said computed skill level, and a process of displaying said set-up display screen are included. A recording medium which stored a program which a computer can read.

[Claim 14]A program which said computer can read, The recording medium according to claim 13 characterized by being a program which computes skill level of operation of said input key based on said computed average value including a process of measuring key touch reaction time over said input key, and a process of computing said measured average value of key touch reaction time.

[Claim 15]A program which said computer can read, The recording medium according to claim 13 or 14 characterized by being a program which sets up said display screen based on information about said inputted operator including a process of inputting information about an operator, at the time of the beginning of using of the image forming device concerned.

[Claim 16]The recording medium according to claim 15, wherein information about said operator is information including age of those who use a device at least, and eyesight.

[Translation done.]